

# Requirements Tools

**Your friendly assistant**

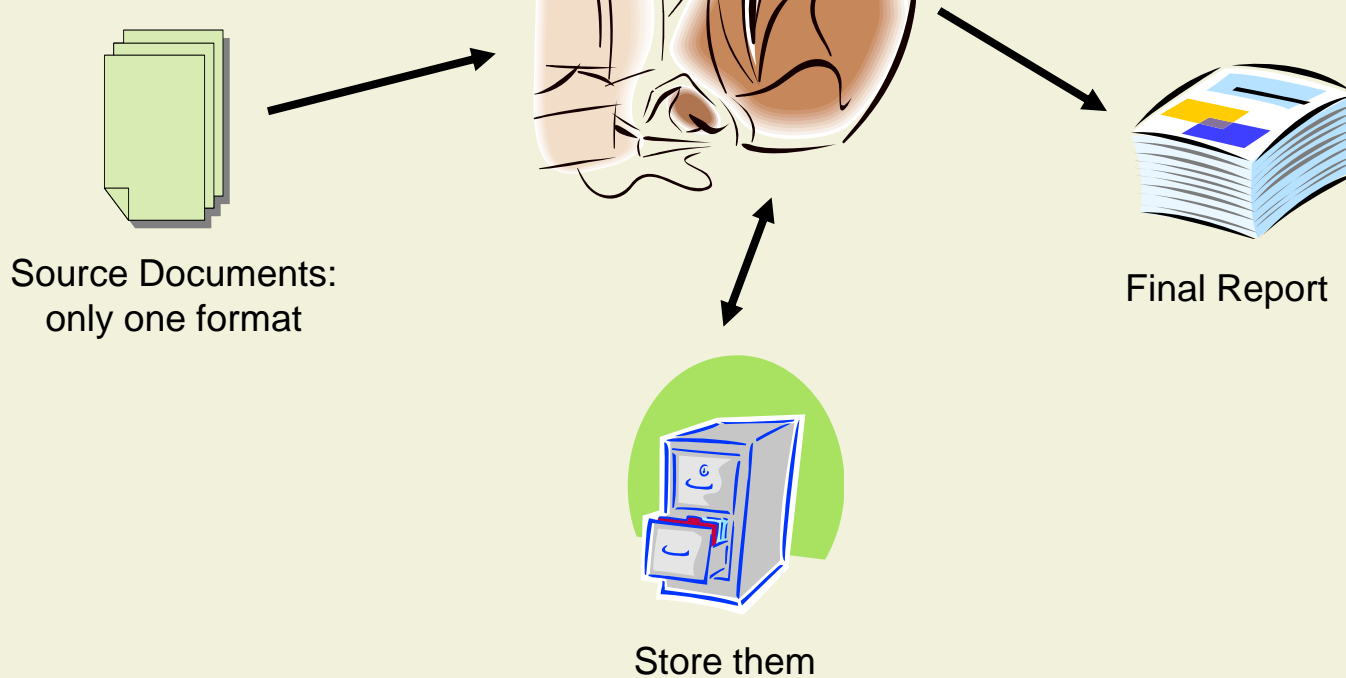
Chair of Programming Methodology

# Agenda for Today

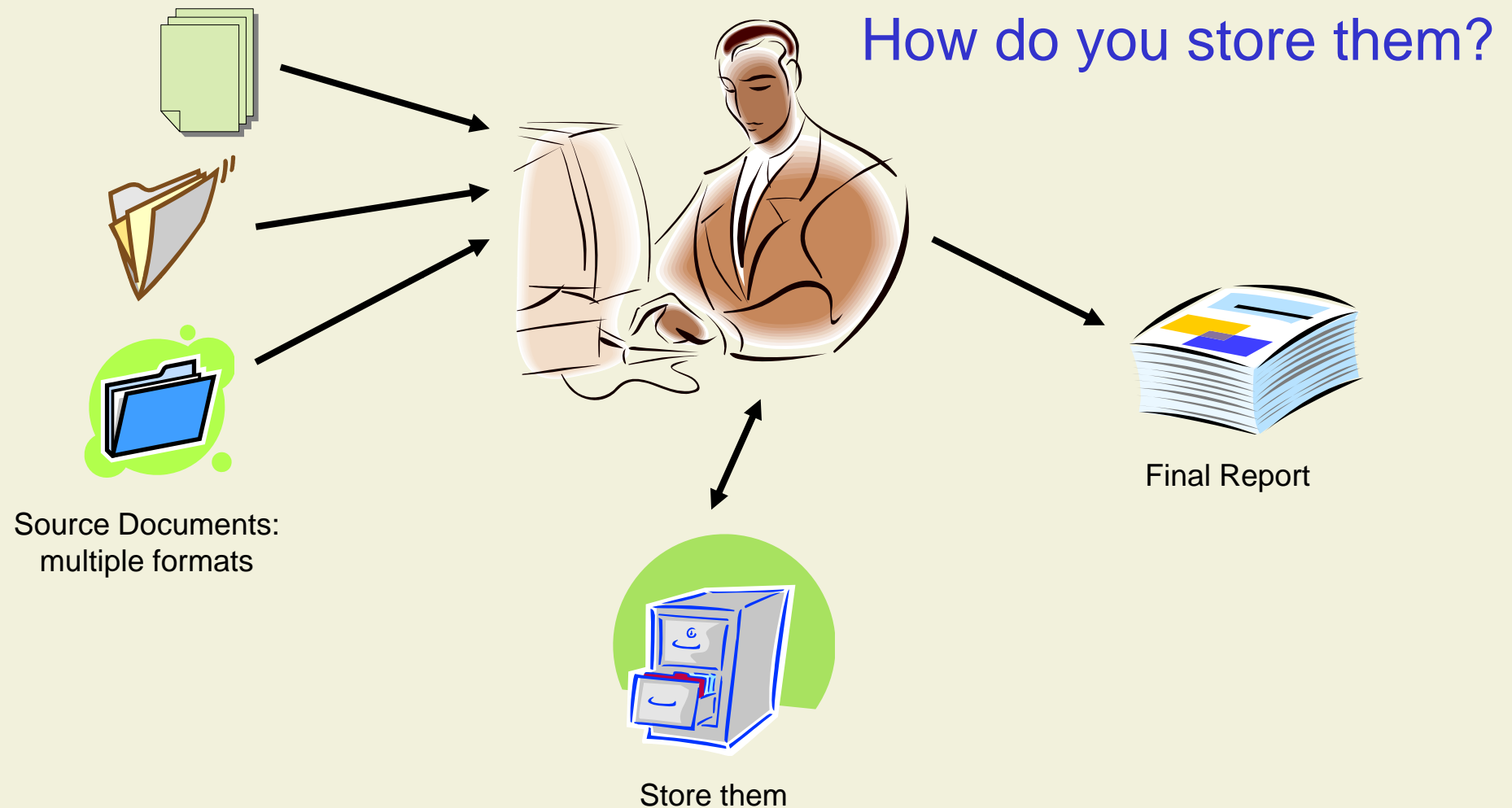
1. Problem
2. Tasks of Requirements Management tool
3. Tool Presentation: **Rational RequisitePro**
4. Discussion

# Problem

1. Capture the requirements
2. Store them
3. Write a report

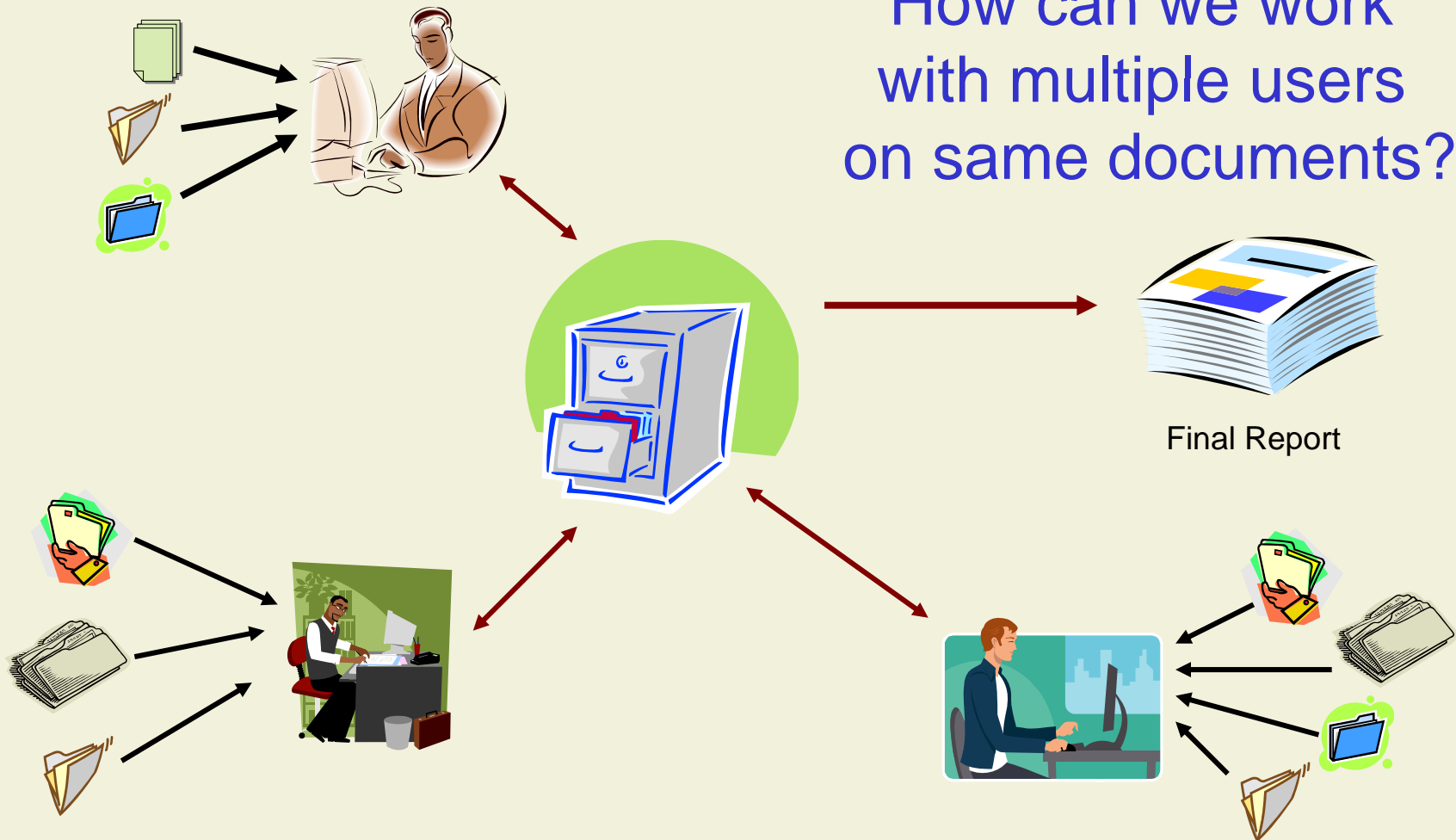


## Problem (cont)

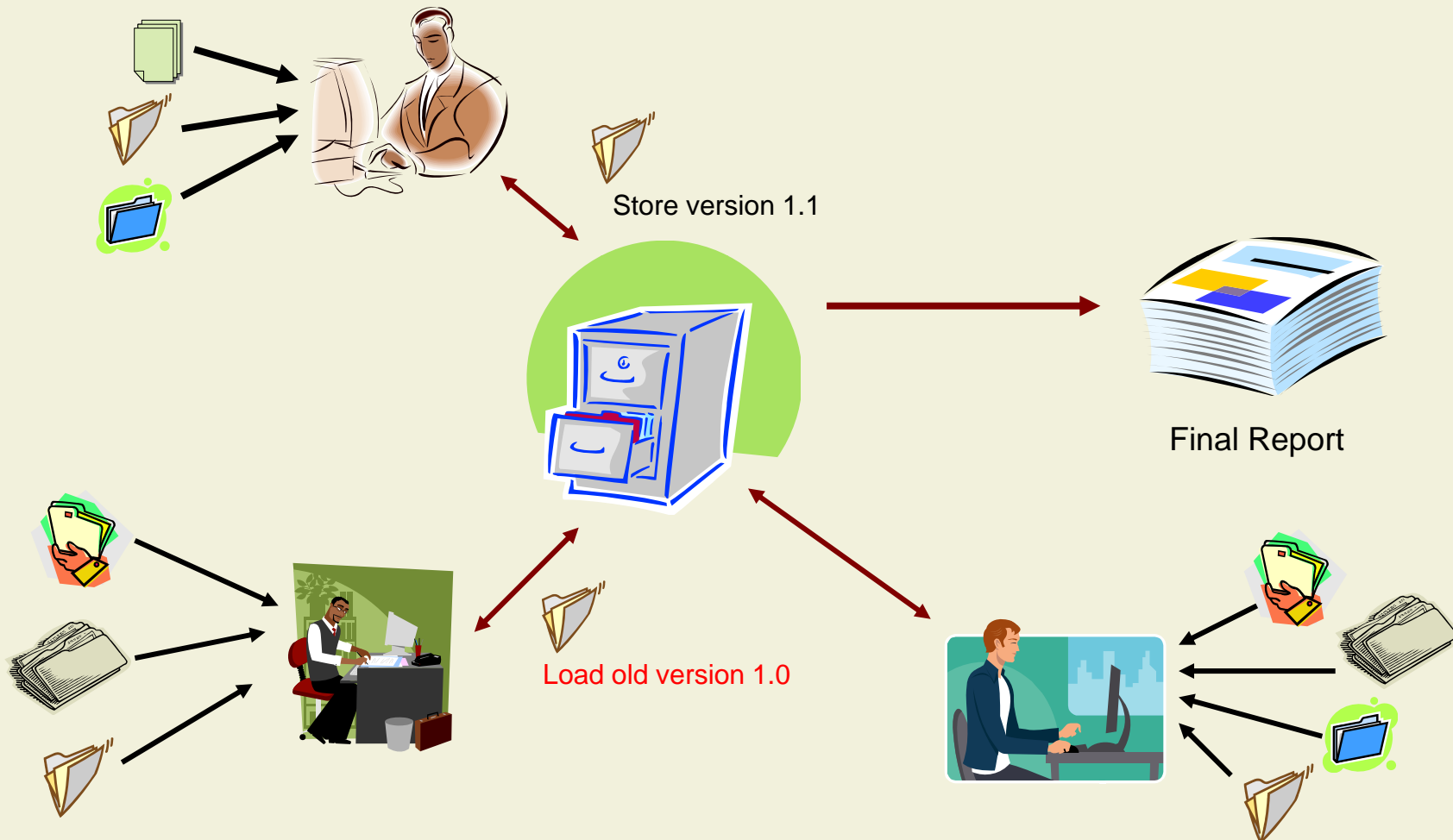


## Problem (cont)

How can we work  
with multiple users  
on same documents?

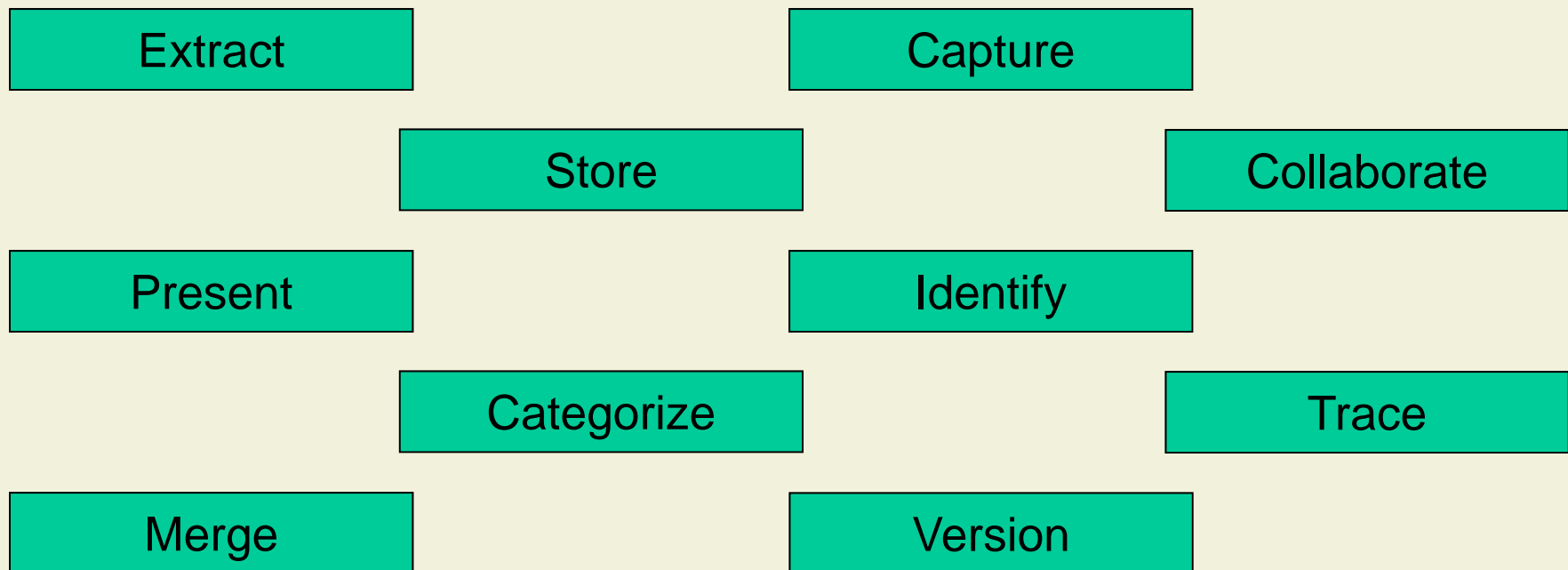


# Problem (cont)



# Tools for software requirement

- We need tools
- Task of Requirement Tools:



# Extract

- **Sources** for requirements come in different forms
  - Word Documents
  - PDF Documents
  - Diagrams
  - E-Mails
  - Photos, Video, Audio, ...
- Requirements have to be **extracted** from these documents
- Any extracted requirement has to be **linked** to its source
- Sometimes it is difficult to “link into the source”.



# Capture

- Are requirements always **plain text** ?
  - “A picture can say more than a thousand words.”
  - Technical applications are often specified with mathematical equations.

# Store

- More or less a **database** issue.
- For large and long-term projects, the database with requirements can become **very large**.
- We need fast retrieval of data.

# Collaborate

- If there are many people working on the same requirement data:
  - How can they all **access** the data ?
  - How is tracked “**Who changes what ?**”
  - **Collision** detection

# Present

- The final requirements document has to
  - form the contractual basis between client and supplier.
  - be well **sorted**.
  - **readable**.
  - **understandable**.
  
- The tools should be able to **automatically generate** a current version of the requirements document at any time.

## Other tasks

- Version
  - Documents are constantly changed.
  - The tool must keep the version of the documents
  
- Identify
  - Every requirement needs an **identification**
  - This identification has to be **unique** and **stable** over time and space

## Other tasks (cont)

### ■ Categorize

- Categorization is the basic approach to organize data.
- Standard techniques:
  - hierarchical structure
  - tags (labels)
  - numbering

### ■ Trace

- During the requirements process we identify:
  - Requirements that complement other requirements
  - Requirements that contradict other requirements
  - Requirements that are derived from other requirements

## Other tasks of RMT (cont)

- Merge
  - Many sources for requirements
    - At least one for every stakeholder
  - A **single document** should be produced.
  - A tool can support this process:
    - Showing **differences** between documents.
    - Identifying **similarities** between documents.

# Tools

- There are a lot of requirement tools:

Accept 360° Active Focus Agility AnalystPro Caliber CARE Cradle CRW DocuBurst Doors Focal Point GMARC iRise IRqA Jalsoft Leap SE MKS MockupScreens Objectiver Open Process Framework Rally RDT Reconcile Reqtify RequireIT RequisitePro Rhapsody Serena RTM Slate SpeedEV Statestep Steeltrace Team-Trace Truereq Vital-Link WIBNI XTie

- List of requirement tools and links to web pages:

<http://easyweb.easynet.co.uk/~iany/other/vendors.htm>



# Rational RequisitePro



- **Developed by IBM**
- **Enables the creation, analysis and management of requirements and use cases**
- **Incorporates a database infrastructure**
- **Provides detailed traceability views**
- **Integrates with other tools (in the IBM Software Development Platform)**

# Exploring the tool

File Edit View Requirement Traceability Tools Window Help

Main menus and tools bar

FEAT2: Easy browsing  
Easy browsing for available titles

FEAT3: Search by multiple criteria  
Ability to search for CDs by multiple criteria

FEAT4: Ability to check status of an order  
Ability to check the status of an order

FEAT5: E-mail notification of new titles of interest  
E-mail notification for Shoppers when new titles that may interest them are added to the collection.

FEAT6: Highly scalable  
Highly scalable to include many titles and effective searching through those titles

FEAT7: Ability to customize the Web site  
Shoppers should be able to customize the Web site.

FEAT8: User registration good for future purchases  
Shoppers should be able to register once for all purchases; they should not be asked to re-enter personal information.

FEAT9: Shipping Status  
Shoppers should be able track any package that has been shipped to them.

FEAT10: Ability to add/remove offerings  
Ability to add/remove CDs available for sale

FEAT11: Ability to check on customer orders  
Ability to check on Shopper orders

FEAT12: Maintain customer information  
Maintain Shopper information

FEAT13: Generate reports  
Generate reports

FEAT14: Use Legacy System  
Use existing legacy Warehouse System for shipping orders.

FEAT15: Interactive guide to site through online...  
The Web site will include an interactive guide in the form of online Help.

\* <Click here to create a requirement>

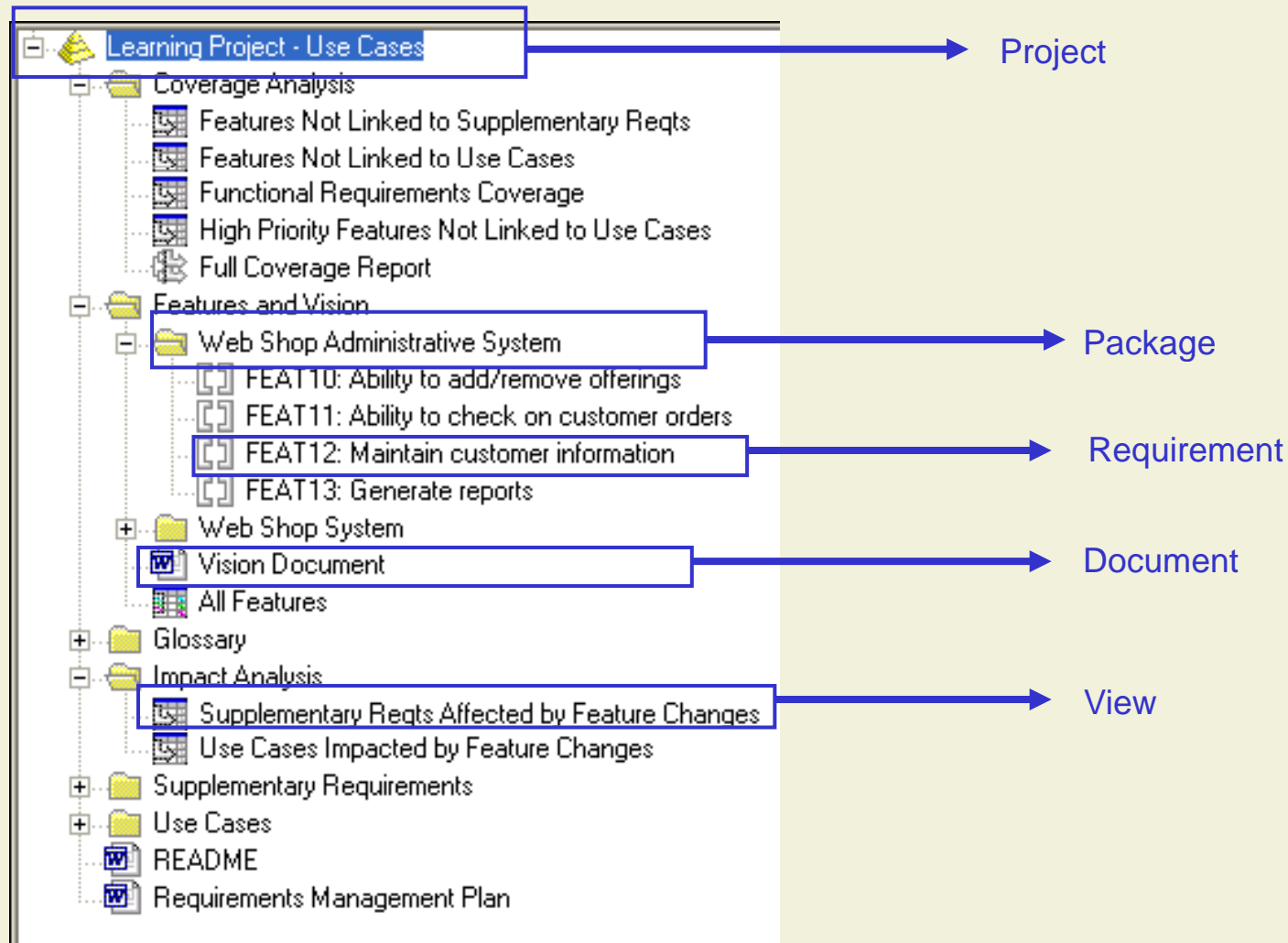
Requirement	System	Priority	Approval	Impact	Effort	Help Desk
Web Shop System	Must	Approved	Medium	Medium	Help Desk	
Web Shop System	Should	Validated	Low	Medium	Partners	
Web Shop System	Could	Proposed	Medium	Low	Help Desk	
Web Shop System	Must	Proposed	High	Medium	Customer visits	
Web Shop System	Should	Proposed	Low	High	Help Desk	
Web Shop System	Should	Incorporated	Low	Low	Customer visits	
Web Shop System	Should	Approved	Medium	Medium	Help Desk	
Web Shop Administrative System	Should	Proposed	Low	High	Help Desk	
Web Shop Administrative System	Must	Incorporated	High	Medium	Partners	
Web Shop Administrative System	Must	Proposed	Medium	Low	Help Desk	
Web Shop Administrative System	Should	Incorporated	Low	Medium	Customer visits	
Web Shop System	Must	Proposed	Medium	Medium	Help Desk	
Web Shop System	Could	Proposed	Medium	High	Competitors	
None	Should	Proposed	Medium	Medium	Help Desk	

This Learning Project is a simple example of how to use Rational RequisitePro to enter and use use cases.

We recommend you first open the README document, then the Requirements Management Plan, then the Vision document.

FEAT4: Ability to check status of an order  
Ability to check the status of an order

# Exploring the tool (cont)



# Requirements View

Requirements:	Type	Package	Priority	Status	Difficulty	Stability	Origin
▶ <b>FEAT1: Secure payment method</b> Secure payment method	Functional	Web Shop System	Must	Incorporated	Low	Medium <no entry> Low Medium High	Partners
<b>FEAT2: Easy browsing</b> Easy browsing for available titles	Functional	Web Shop System	Should	Proposed	Medium	Medium High	Help Desk
<b>FEAT3: Search by multiple criteria</b> Ability to search for CDs by multiple criteria		Web Shop System	Must	Approved	Medium	Medium	Help Desk
<b>FEAT4: Ability to check status of an order</b> Ability to check the status of an order	Functional	Web Shop System	Should	Validated	Low	Medium	Partners
<b>FEAT5: E-mail notification of new titles of interest</b> E-mail notification for Shoppers when new titles that may interest them are added to the collection.	Functional	Web Shop System	Could	Proposed	Medium	Low	Help Desk
<b>FEAT6: Highly scaleable</b> Highly scaleable to include many titles and effective searching through those titles	Non-Functional	Web Shop System	Must	Proposed	High	Medium	Customer visits

# Link between requirement and its source

► <b>FEAT4: Ability to check status of an order</b> Ability to check the status of an order	Functional	Web Shop System	Should	Validated	Low	Medium	Partners
<b>FEAT5: E-mail notification of new titles of interest</b> E-mail notification for Shoppers when new titles that may interest them are added to the collection.	Functional	Web Shop System	Could	Proposed	Medium	Low	Help Desk
<b>FEAT6: Highly scalable</b>	Non-Functional	Web Shop System	Must	Proposed	High	Medium	Customer visits

Source  
document  
in Word format

## FEAT4: Ability to check the status of an order

After Shoppers make a purchase, they will want to have access to the status of their order.

## FEAT5: E-mail notification for Shoppers when new titles that may interest them are added to the collection.

Shoppers have requested the ability to be notified when new titles are added to our collection.

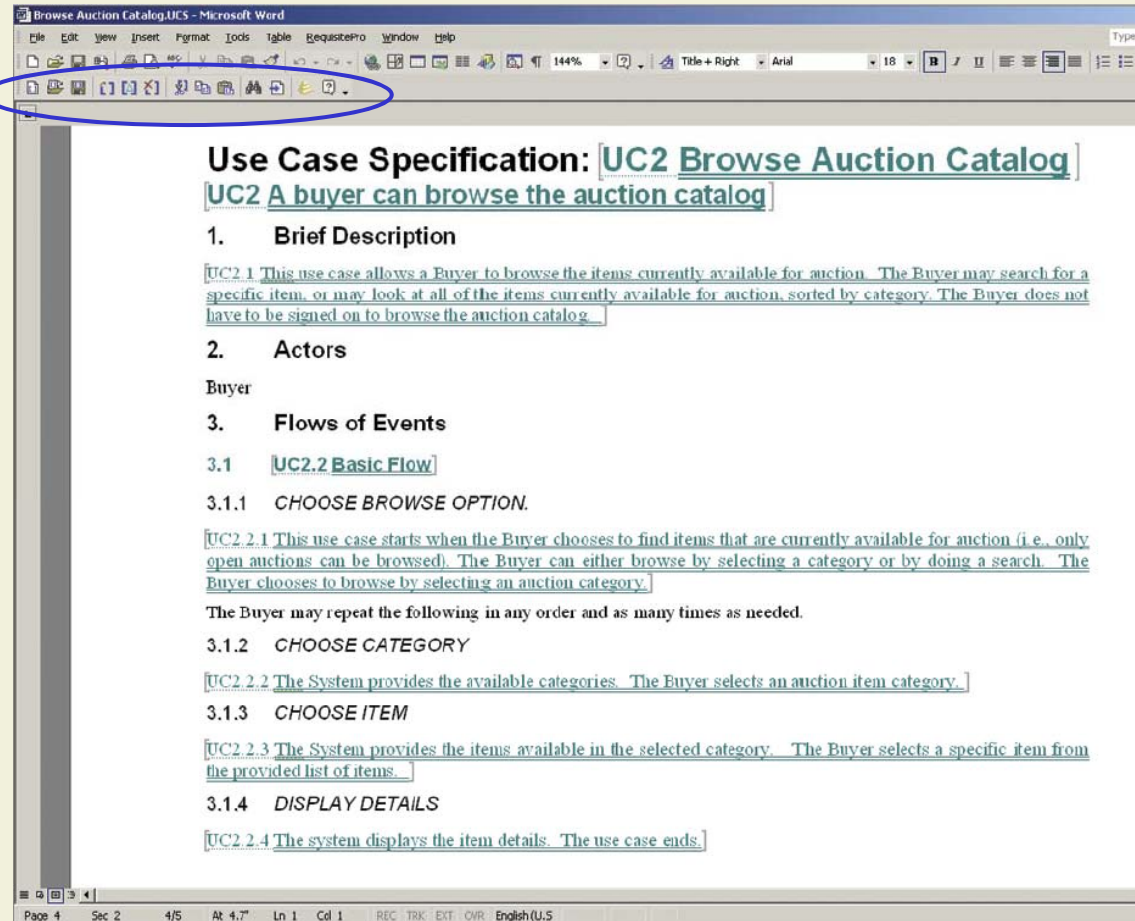
## FEAT6: Highly scalable to include many titles and effective searching through those titles

We anticipate a minimum of 1,000,000 titles to be available at ClassicsCD.com, so we must ensure that browsing of CD titles is not too painful.

# Microsoft Word integration

tool bar

Source  
document  
in Word format



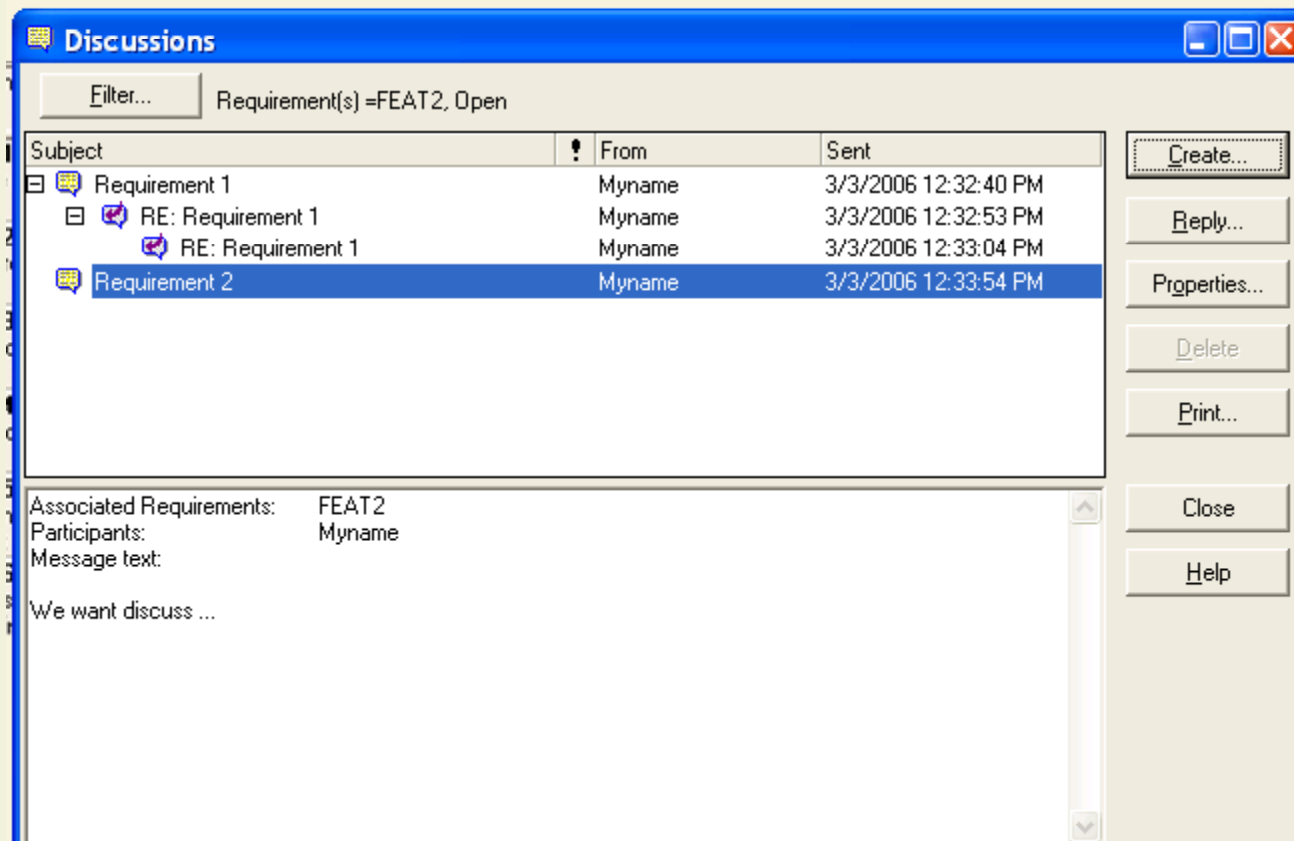
# Microsoft Word integration (cont)

<b>UC3.5: Postcondition: ACCOUNT NOT CREATED</b> This occurs when the Buyer fails to enter valid Buyer information values or the Buyer chooses to cancel the...	Post Condition	Medium	Validated	Medium	Medium	False	1.0005
<b>UC3.6: Postcondition: ACCOUNT NOT...</b> This occurs when the Buyer fails to activate his/her account because the Buyer never attempted activation...	Post Condition	Medium	Validated	Medium	Medium	False	1.0005
<b>UC4: Sell Item</b> A Seller can create a new online auction.	Name	Medium	Incorporated	Medium	High	False	1.0010



[UC2.1 This use case allows a Buyer to browse the items currently available for auction. The Buyer may search for a specific item, or may look at all of the items currently available for auction, sorted by category. The Buyer does not have to be signed on to browse the auction catalog.]

# Forum for Discussions





# Web interface

The screenshot shows the Rational RequisiteWeb web interface in Microsoft Internet Explorer. The browser window title is "RequisiteWeb: Attribute Matrix View - Microsoft Internet Explorer". The address bar shows the URL: [http://wco1jheumann/ReqWeb/ReqView\\_Frame.jsp?ViewKey=12&null&ViewPosRow=1](http://wco1jheumann/ReqWeb/ReqView_Frame.jsp?ViewKey=12&null&ViewPosRow=1). The page header includes the Rational RequisiteWeb logo and navigation links: Rational.com, RequisitePro Home, User Profile, About, and Log Out. The main content area displays a table of requirements for a web shop system. The table has columns for Requirements, Priority, Status, Contact, and Difficulty. The requirements are listed as FEAT1 through FEAT10. The left sidebar shows a tree view of the project structure, including ClassicsCD Web Shop, Business Context, Coverage Analysis, Design Elements, Features and Vision, Administrative, Web Shop System, Vision, All Features (selected), All high priority features, Glossary, Impact Analysis, Risks, Supplementary Specification, Use Cases, and Requirements Management F. The bottom of the page shows a discussion indicator, hierarchical format, page size, and requirements count.

Requirements	Priority	Status	Contact	Difficult
<a href="#">FEAT1</a> Secure Payment method.	Medium	Validated	Fran	Medium
<a href="#">FEAT2</a> Easy Browsing for available titles.	High	Proposed	Fran	Low
<a href="#">FEAT3</a> Search capabilities	Medium	Validated	Fran	Medium
<a href="#">FEAT4</a> Ability to check the status of an order.	High	Validated	Fran	Low
<a href="#">FEAT5</a> E-mail notification for customers when new titles are added that may be of interest to them.	Medium	Validated	Fran	Medium
<a href="#">FEAT6</a> Highly Scaleable to include many titles and effective searching through those titles.	Medium	Proposed	Fran	Medium
<a href="#">FEAT7</a> Customer should be able to customize the web site.	Medium	Validated	Fran	Medium
<a href="#">FEAT8</a> Customer should be able to register as a user for future purchases without needing to re-enter personal information.	Medium	Validated	Fran	Medium
<a href="#">FEAT9</a> Ability to add/remove offerings.	Medium	Validated	Sandy	High
<a href="#">FEAT10</a> Ability to check on customer orders.	Medium	Validated	Sandy	Medium

Discussion Indicator: Off  
 Hierarchical Format: Off  
 Page Size: 10  
 Requirements: 1 through 10 of 15

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# Discussion

## ■ Pros:

- Databases: Ms Access, Oracle, SQL Server, DB2
- Easy to use
- Good interfaces and views: Matrix and trees
- Link between requirements and the source that describes them
- A forum for discussions with filter tools
- Integrated into Microsoft Word

## ■ Cons:

- It is only available for Windows
- It is not free

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## Discussion (cont)

- Current Version: 7.1
- Link:
  - <http://www.ibm.com/software/awdtools/reqpro/>